CLAIMS

What is claimed is:

1. A method of performing electrophysiological testing in a cardiac stimulation device capable of delivering non-invasive programmed stimulation, comprising:

detecting a cardiac event in a cardiac chamber;

implementing an electrophysiological testing scheme upon detection of the cardiac event occurring in the cardiac chamber; and

delivering a predetermined sequence of stimulation pulses to the cardiac chamber as dictated by the testing scheme.

2. The method of claim 1, wherein implementing the testing scheme is performed during a refractory period that follows the detected cardiac event.

3. The method of claim 2, wherein implementing the testing scheme includes switching from a standard operating mode to a non-invasive programmed stimulation mode.

4. The method of claim 3, further including receiving an external command that triggers the onset of the non-invasive programmed stimulation.

5. The method of claim 3, wherein detecting the cardiac event includes detecting an intrinsic event in the cardiac chamber being tested.

6. The method of claim 5, wherein detecting an intrinsic event includes detecting an intrinsic depolarization occurring in one of an atrial cardiac chamber and a ventricular cardiac chamber.

7. The method of claim 3, wherein detecting the cardiac event includes detecting a stimulated event in the cardiac chamber being tested.

8. The method of claim 7, wherein detecting a stimulated event includes detecting one of an atrial stimulation pulse and a ventricular stimulation pulse.

9. The method of claim 3, further including providing a recovery delay following the non-invasive programmed stimulation.

10. The method of claim 9, further comprising starting a second refractory period following the expiration of the recovery delay if no intrinsic event is detected during the recovery delay.

11. The method of claim 10, further including effecting a transfer from the non-invasive programmed stimulation mode to the standard operating mode during the second refractory period.

12. The method of claim 1, further including blanking sensing circuitry of non-tested cardiac chambers during the delivery of the sequence of stimulation pulses in the cardiac chamber being tested.

13. The method of claim 1, further including providing back-up ventricular stimulation whenever atrial non-invasive programmed stimulation is performed; and

wherein providing back-up ventricular stimulation includes providing back-up ventricular stimulation at a programmed rate that is decoupled from the atrial non-invasive programmed stimulation.

14. The method of claim 9, further comprising starting a refractory period if an intrinsic event is sensed in the recovery period.

15. A stimulation device capable of performing electrophysiological testing by delivering non-invasive programmed stimulation, comprising:

a discriminator that senses a cardiac event in a cardiac chamber being tested;

timing circuitry, coupled to the discriminator, that triggers an onset of the non-invasive programmed stimulation based on a detected cardiac event occurring in the cardiac chamber being tested;

a controller, connected to the timing circuitry that executes a transfer between a first and a second stimulation mode; and

an energy generator connected to the discriminator, the timing circuitry and the controller, the generator is controlled by the controller to deliver a sequence of stimulation pulses to the cardiac chamber being tested in response to the detected cardiac event.

16. The stimulation device of claim 15, wherein the timing circuitry sets a refractory period that follows a triggering detected cardiac event; and

wherein the controller executes the transfer during the refractory period.

17. The stimulation device of claim 16, wherein the controller executes the transfer between the first and the second stimulation mode by switching from a standard operating mode to a non-invasive programmed stimulation mode.

18. The stimulation device of claim 17, further including a programmer that generates an external command; and

wherein the timing circuitry triggers the onset of the non-invasive programmed stimulation in response to the external command.

19. The stimulation device of claim 17, wherein the discriminator detects any one of an atrial intrinsic event, ventricular intrinsic event, an atrial stimulated event, or a ventricular stimulated event in the cardiac chamber being tested.

20. The stimulation device of claim 17, wherein the timing circuitry further sets a recovery delay at the expiration of the non-invasive programmed stimulation.

21. The stimulation device of claim 20, wherein the timing circuitry is operative to start a second refractory period following the expiration of the recovery delay if no intrinsic event is detected during the recovery delay.

22. The stimulation device of claim 21, wherein the controller further effects a transfer from the non-invasive programmed stimulation mode to the standard operating mode during the second refractory period.

23. The stimulation device of claim 15, wherein the energy generator further provides back-up ventricular stimulation whenever atrial non-invasive programmed stimulation is performed.

24. The stimulation device of claim 23, wherein the energy generator provides back-up ventricular stimulation at a programmed rate that is decoupled from the atrial non-invasive programmed stimulation.

25. A stimulation device capable of performing electrophysiological testing by delivering non-invasive programmed stimulation, comprising:

means for detecting a cardiac event in a cardiac chamber to be tested;

means for implementing an electrophysiological testing scheme in response to detection of the cardiac event; and

means for delivering a sequence of stimulation pulses to the cardiac chamber as dictated by the testing scheme.

26. The stimulation device of claim 25, further comprising means for setting a refractory period that follows the detected cardiac event; and

wherein the implementing means implements the testing scheme during the refractory period.

27. The stimulation device of claim 26, further comprising means for switching from a standard operating mode to a non-invasive programmed stimulation mode.

28. The stimulation device of claim 27, further including means for detecting cardiac events in the chamber being tested; and

wherein the detecting means senses any one of an atrial intrinsic event, ventricular intrinsic event, an atrial stimulated event, or a ventricular stimulated event in the cardiac chamber being tested.

29. The stimulation device of claim 27, further comprising means for setting a recovery delay at the expiration of the non-invasive programmed stimulation.

30. The stimulation device of claim 29, further comprising means for starting a second refractory period following the expiration of the recovery delay if no intrinsic event is sensed during the recovery delay.

31. The stimulation device of claim 30, further comprising means for effecting a transfer from the non-invasive programmed stimulation mode to the standard operating mode during the second refractory period.

32. The stimulation device of claim 25, wherein the delivering means further provides back-up ventricular stimulation whenever atrial non-invasive programmed stimulation is performed.

33. The stimulation device of claim 32, wherein the delivering means provides back-up ventricular stimulation at a programmed rate that is decoupled from the atrial non-invasive programmed stimulation.

34. The stimulation device of claim 25, further including means for effecting a transfer from the test mode to a normal mode if a failure occurs during the non-invasive programmed stimulation.

35. The stimulation device of claim 25 for use in an antitachycardia pacing algorithm, further comprising means for effecting a transfer from a first stimulation state machine to the second stimulation state machine if tachycardia detection is confirmed.